Columbia University
in the City of New York
[NEW YORK 27, N. Y.]
DEPARTMENT OF ZOÖLOGY

February 11,1949

Dear Dr. Lederberg,

This fall I wrote to ask you about the possibility of recombination in E. coli strain 15, and since you had not been successful with that strain, I have concentrated my studies on K12, under the direction of Prof. F.J. Ryan.

The problem in which I am interested grew out of some observations I made on strain 15 last summer when I observed changes in phage sensitivity apparently arising concurrently with spontaneous loss of a growth-factor requirement. Strain 15, as you may know, is resistant to all 7 "T" phages, while k12 is sensitive. In an attempt to repeat my results in K12, I have been selecting various phage-resistant mutants. In your 1947 Genetics paper, you mention the mutants V_1^r, $V_{1a}r$ and V_1b, a very mucoid type. I have also repeatedly isolated a mucoid type, and find that it is resistant to all the phages. Moreover, I have also observed what may be the "instability" you mentioned. Perhaps this is the same mutant; if you still have a strain containing $V_{1b}r$, I would very much appreciate it if you could send me a culture. Under what conditions is $V_{1b}s$ selected, in your experience ?

Since you have not, I believe, published your data on phage-resistance patterns in K12, I wonder whether I might ask you about your results, to avoid a duplication of effort. The patterns I have found repeatedly are as follows:

1,5
1-7 (mucoid) Seems to also be resistant to some "h" phage mutants
2
4,6
3,4,7
2,3,4,6,7

The mucoid mutant can be picked up after plating with any phage, but it is much rarer than 1,5. After plating with T_3, the remaining cells are almost all of the mucoid type.

Are my results in agreement with your observations ? Are any of these mutants the "V_6" mentioned in your paper? I am very interested also in your recombination studies of the loci of phage-resistant mutants, since I am planning to use what may be V_{1b} and other mutants in crosses.

I realize that if you have quite an accumulation of data, my request may be unreasonable, but I shall be very grateful for any bit of information pertaining to this problem.

Sincerely yours,
Margaret Lieb